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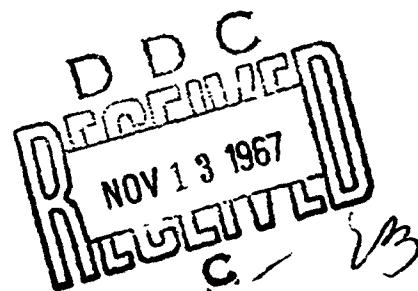
U. S. DEPARTMENT OF COMMERCE  
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AN ANNOTATED BIBLIOGRAPHY OF CLIMATIC MAPS OF INDONESIA

By  
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## INTRODUCTION

- Indonesia, as used in this bibliography, refers to all the islands in the general area of Latitudes 5°N-10°S and Longitudes 95°E-143°E excluding British North Borneo, Sarawak and Malaya Peninsula, although some general area maps may include them.

Only climatic maps, containing data summarized over a period were abstracted.

The initials DWB and DLC used in the abstract titles refer to the U. S. Weather Bureau, Washington, D. C. and the Library of Congress, Washington, D. C. respectively.

The scale for most of the maps were obtained by a natural scale indicator and shown by sub-brackets; i.e. 1:1 000 000. This indicator was proposed by S. W. Boggs, Chief, Division of Geography and Cartography, Department of State. In some instances no latitude lines were drawn on the maps, and therefore an estimated scale was obtained by measuring where the latitude lines would be drawn on the map and the natural scale indicator used to measure an approximate scale and that scale placed in parentheses; i.e. scale is not indicated (about 1:500 000).

Abstracts with initials D.M.C. were done by Darthula M. Carraway and M.L.W. by Marie L. Weight.

The search for sources terminated October 1961.

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AN ANNOTATED BIBLIOGRAPHY OF CLIMATIC MAPS OF INDONESIA

1900 - 1909

1. Bemmelen, W van Over den Regenval op Java. Uitkomsten der waarnemingen - op ruim zeven-honderd stations op Java in het tijdperk 1879 tot 1905. (On the rainfall in Java. Results of the observations at more than seven-hundred stations in the period 1879 till 1905). Batavia, 1908. 83+p. mainly tables. maps. DWB C/eg B455j.

...Contains the following maps of 1:1 000 000 scale, based on observations at >700 stations during the period 1879/1905: rainfall station locator; and February, August and annual amount of precipitation in centimeters.

JAW

2. Herbertson, A.J. and Taylor, E.G.R. Asia. Mean annual rainfall map. Clarendon Press, London, 1909. DLC Map Division.  
...This huge polychrome map (scale 1:7 500 000) of Asia is divided into 6 sections. It contains the islands of Sumatra, Borneo, Celebes and some of the smaller islands in the Archipelago and presents mean isohyets at 50 mm intervals (150-...300mm) and tinted areas at 25cm intervals (0, 25-...200 cm).

MLW

1910-1919

3. Bacon, G.W. & Co, Ltd. Asia and adjacent lands. London, 1914. DLC Map Division.  
...This set of enlarged polychrome maps (scale 1:16 000 000) of Asia, Europe and part of Africa includes all of the East Indian Archipelago and contains monthly (January and July) at 10° intervals (-30° to 90°F), annual and seasonal (summer, winter and spring) means of temperature; maximum temperature in summer. No period of record is given.

MLW

4. Braak, C. Het klimaat van den Idjen. (The climate of Idjen.) 1919.

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## Source No. 4 Continued

5lp. tables. maps. DWB C/eg B794k.

...Contains the following maps for the Idjen Highlands (East Java). Monthly and annual mean rainfall (hatched, showing areas of 0-25, 25-50, 50-100, then every 100mm to 500-600mm and >600mm); absolute daily maximum rainfall of scale 1:625 000. Maps appear to be based on data from 74 stations having from 5-71 years of record.

JAW

1920-1929

5. Boerema, J. Regenval in het noordelijk deel van Sumatra's Oostkust. (Rainfall in the northern part of Sumatra's East coast). Batavia, (K) Magnetisch en Meteorologisch observatorium, Verhandelingen, No. 11, 1923. 63p. 19 maps, tables, refs. In Dutch and English. DWB M82.1/91 I41v. No. 11.

...Contains the following maps (scale 1:1 700 000) based on data from 357 rainfall stations (having from 4-20 years record within the period 1901-1920) in the northern part of the east coast of Sumatra: rainfall stations locations, monthly (hatched, showing areas of 50-75, 75-100, 100-150, 150-200mm and further increasing by 100mm to 800mm) and annual (hatched, showing areas of 1400-1500, then every 500mm to 4000 and then every 1000mm to 7000mm) mean rainfall, month of maximum rainfall (hatched showing areas when it occurred in either January, September, October, November, or December, month of minimum rainfall (hatched, showing areas when it occurred in either February, February/March, March, June, or July), month of secondary maximum rainfall (hatched, showing areas when it occurred in either March, April, or May), month of secondary minimum rainfall (hatched, showing areas when it occurred in either January, February, June, or July), and rainfall types (For all the rainfall stations the yearly distribution of rainfall was inserted graphically on a chart and the stations, of which the graphs showed only minor differences, were assembled in one group, and then the average monthly rainfall of the group was calculated as the mean of the average monthly rainfall figures of all stations).

JAW

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6. Boerema, J. Regenval in Nederlandsch-Indië. (Rainfall in the Netherlands Indies). Batavia (K). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 14, Vol. II Kaarten van den gemiddelden jaarlijkschen en maandelijkschen regenval op Java en Madoera, met een kaart der regenstations. (Maps of the mean yearly and monthly rainfall on Java and Madvera, with a map showing the position of the rainfall stations). 1925. DWB M82.1/91 I4lv. No. 14. v.2.  
...Presents polychrome maps scale 1:1 000 000 of Java and Madoera with: monthly and annual mean isohyets (also hatched areas) in mm. and location of rainfall stations. Data based on period 1879-1922.

DMC

Ibid., No. 24, 1931, is similar collection of data and maps, for other areas, for period 1879-1922; covered by No. 14, 1925, however.

JAW

7. Boerema, J. Typen van den regenval in Nederlandsch-Indië. (Rainfall types in the Netherlands Indies). Batavia (K). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 18 1926 . 103p. tables, graphs, maps. DWB M82.1/91 I4lv. No. 18.

...The rainfall of the Archipelago is classified according to rain types. Included are 2 maps (Java and Madoera), scale 1:500 000 and outer provinces of Archipelago, scale 1:6 000 000 showing: areas of various rain types (numbered); graphs of rainfall distribution, according to rain type, by months at 100mm intervals; wind roses (at sea) with length of wind vectors proportional to wind steadiness (50mm =100% for Madoera and Java; 20mm=100% for Archipelago) and numbered 1-12 to represent each month; arrows (on map for Madoera and Java) indicating the East and West monsoons. No period of record is given, but, is not less than 5 years.

MLW

8. Braak, C. Het klimaat van Nederlandsch-Indië (The climate of the Netherlands Indies). Batavia (K). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 8, Vol. I. Algemeene Hoofdstukken. (General chapters). 1923. tables, diagrs., maps. English summary. DWB M82.1/91 I4lv. No. 8, V.1.

Source No. 8 Continued

...Contains numerous maps of the East Indies Archipelago in general and the islands of Java and Madoera in particular. Maps, scale 1:42 000 000, of the Archipelago present: mean monthly isobars and prevailing wind direction (arrows); mean monthly isotherms at sea level; months with maximum temperature; annual sea wind constancy in percent; months with maximum squalls; month and year of occurrence, with highest percentage, of clear and overcast skies; months with greatest amount of haze; months with greatest frequencies in percent of thunder (hatched, showing areas of <2, 2-3, 3-4, and >4 percent); and months with greatest and least rainfall (scale 1:8 000 000). In addition to the above mentioned maps, the following (scale 1:1 800 000) for Java and Madoera contain: total consecutive months with greatest rainfall of 5, 10, and 15mm for E. Java and Madoera (scale 1:3 200 000) and 30 and 50mm for entire Java and Madoera; mean annual sunshine duration in percent and for periods January-February and July, August and September from 08-16 LT. All reliable data up to 1921 was used. No period less than 5 years.

MLW

9. Braak, C. Het klimaat van Nederlandsch-Indië (The climate of the Netherlands Indies). Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 8, Vol. II, Pt. 3. Buitengewesten behalve Sumatra. (The Archipelago with Sumatra). 1929. figs., maps, tables. English summary. DWB M82.1/91 I4lv. No. 8, v. 2 pt. 3.

...Contains a map, 1:6 000 000 scale, of Borneo, Java, Celebes, Minor Sunda Island and Timor, Moluccas, Zuidivester-, Zuidvoster-, Kei- and Aroe Islands, and New Guinea, showing prevailing wind direction for selected stations. Length of arrow indicates degree of steadiness. Map appears to be based on data for period 1879-1911. See source numbers 10 and 11 in this bibliography.

JAW

10. Braak, C. Het klimaat van Nederlandsch-Indië. (The climate of the Netherlands Indies). Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 8, Vol. II, Pt. 2. Java en Madoera. (Java and Madoera). 1928. 399+p. tables, maps, refs. English summary. DWB M82.1/91 I4lv. No. 8, v.2. pt. 2.

Source No. 10 Continued

...Contains two maps scale 1:2 000 000 of Java and Madoera with plotted prevailing wind direction for the east and west monsoon seasons for selected stations (local winds indicated by red arrows and other winds by black arrows, length of arrow indicates degree of steadiness). No period of record is given. See source numbers 9 and 11 in this bibliography.

DMC

11. Braak, C. Het klimaat van Nederlandsch-Indië. (The climate of the Netherlands Indies). Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 8, Vol II, Pt. 1. Sumatra, 1925. 156+p. tables, maps, diagrs. English summary. DWB M82.1/91 I41v. No.8, v.2, pt 1.

...Contains a map (scale 1:4 000 000) covering the area including Bangka, Billiton, Discovery Oostbank and the South China Sea with prevailing wind direction by broken arrows for January and February, and solid arrows for July and September. Length of arrows denote degree of steadiness ( $l_{max}=3\%$ ), during the day (D) and nighthours (N); and a map (scale 1:15, 150 000) of Banka and Billiton with arrows for differential winds (afternoon minus morning obs.) where  $l_{mm}=2\%$ . No period of record given. See source numbers 9 and 10 of this bibliography.

MLW

12. Eichelberger, Robert Regenverteilung, Pflanzendecke und Kulturenentwicklung in der Ostindischen Inselwelt. (Rainfall distribution, plant cover and agricultural development in the East Indian Archipelago). Geographische Zeitschrift, 30: 103-116, 1924. 2 maps, 8 tables, ref. DWB P.

...Contains a map, scale 1:45 000, for the area  $5^{\circ}N$  to  $10^{\circ}S$  and  $95^{\circ}$  to  $130^{\circ}E$  showing distribution of precipitation (hatched, showing areas with equatorial heavy and light rainfall and monsoonal rain of up to 60 days and > than 60 days). No period of record given.

JAW

13. Hesse, Richard Die Niederschlagsverhältnisse in Niederländisch-Indien zwischen 5° nördlicher und 5° südlicher Breite (The precipitation conditions in the Netherlands Indies between 5° north and 5° south latitude). Petermanns Geographische Mitteilungen, 67: 257-260. 1921. map (fold), 5 tables, 6 ref. DWB P.

...Contains a rainfall map, scale 1:6 000 000, for the area 5°N to 5°S and 95°E-135°E showing areas of 50-100, then every 50 cm to 450-500 and >500 centimeters. No period of record is given.

JAW

14. Visser, S.W. Inland and Submarine Epicentra of Sumatra and Java Earthquakes. Indonesia. Djawatan Meteorologi dan Geofisik. Verhandelingen No. 9. 1922. DWB M82.1/91 I4lv. No. 9.

...Maps scale 1:6 000 000, showing type, dates and location of earthquakes at Java and Sumatra up to 1921.

DMC

1930-1939

15. Boerema, J. Gemiddeld aantal op Java en Madoerna in de vier opeenvolgende, voor iedere plaats droogste maanden van het jaar (met een kaart). (Average number of rain-days in Java and Madoera for every station during the four consecutive driest months of the year (with a map and English summary) J. Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 23. 1931. 25 p. English summary. DWB M82.1/91 I4lv. No. 23.

...Contains a polychrome map, scale 1:2 000 000 of Java and Madoera with hatched areas showing mean no. of rainy days during the four driest months of the year (southeast monsoon). Map based on observations made at 2489 stations up to 1928.

DMC

16. Boerema, J. Regenval in Nederlandsch-Indië. (Rainfall in the Netherlands Indies). Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 24, Vol. III. Kaarten van den

Source No. 16 Continued

gemiddelden jaarlijkschen en maandelijkschen regenval op Borneo.  
 (Maps of the mean annual and monthly rainfall in Borneo). 1932.  
 Maps. DWB M82.1/91 I41v, No. 24, v.

...Contains maps of Borneo (scale 1:5 000 000) of mean annual and monthly rainfall amounts (mm) by hatched areas at 50mm intervals (50, 100-....500mm). Period of record from 1879-1922.

MLW

Ibid., No. 14, 1925, is similar collection of data and maps, for Java and Madoera, for period 1879-1922; covered by No. 24, 1932, however.

JAW

17. Boerema, J. Regenval in Nederlandsch-Indië. (Rainfall in the Netherlands Indies). Batavia (K.). Magnetisch en Meteorologisch Observatorium, Verhandelingen, No. 24, Vol. IV, Kaarten van den gemiddelden jaarlijkschen en maandelijkschen regenval op Celebes. (Maps of the mean annual and monthly rainfall in Celebes.). 1933. Maps. DWB M82.1/91 I41v. No. 24 v.4.

...Contains maps (scale 1:3 000 000) of Celebes of mean annual and monthly rainfall amounts (mm) by hatched areas at 500mm intervals (500, 1000-...5000mm). Inset map (scale 1:2 500 000) of Sangi and Talaud Islands also contain similar data. Period of record from 1879-1922.

MLW

Ibid., No. 14, 1925, is similar collection of data and maps, for Java and Madoera, for period 1879-1922; covered by No. 24, 1932, however.

JAW

18. Braak, Cornelius Klimakunde von Hinterindien und Insulinde. (Climatology of Southeast and the Archipelago) In: Koppen, W. and Geiger, R., (ed.) Handbuch der Klimatologie, Bd. 4, Teil R. Berlin, 1931. 125 p. 31 figs., 20 tables, 37 refs. DWB M8 H236h. Bd. 4 Teil R.

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Source No. 18 Continued

... Contains the following maps for the area 20°N.-10°S. Latitude and 93°E-165°E Longitude: pressure and wind direction for January, May, July and November of 1:66 000 000 scale; monthly (every other month commencing with January) and annual precipitation (hatched, showing areas of 0-25, 25-50, 50-100, 100-200, 200-400, 400-600 and >600 mm), month with maximum and minimum rainfall, mean cloudiness for January and July, Köppen's climatic classification, all of 1:41 250 000, scale; and sea level temperature for every other month commencing with January of 1:65 000 000, scale. Also monthly (every other month commencing with January) and annual rainfall in Java of about 1:9 000 000 scale. No period of record is given.

JAW

19. Great Britain. Meteorological Office, Air Ministry. Rainfall and temperature. Edinburgh, 1933. DLC Map Division.

...This large polychrome map (scale 1:10 500 000) of Asia includes the East Indian Archipelago and presents: mean annual rainfall amounts (inches) and mean monthly totals by step diagrams for Penang (inset); small inset maps contain mean January and July isotherms (°F.) and direction of ocean currents by arrows for January and July. No period of record is given.

MLW

20. Midgley, C. Practical wall maps of world climates. Asia. A. Wheaton and Co, Ltd. Exeter, 1931. DLC Map Division

...This map (scale 1:8 700 000) of Asia includes the East Indian Archipelago (except Dutch New Guinea) and presents: monthly rainfall amounts (inches) by block diagrams (one block = 1 inch); mean January (blue) and July (red) isotherms (°F.); coldest (January) and hottest (July) months by blue and red (respectively) hatched areas; monthly (January and July) wind direction by arrows (blue and red); ocean currents by broken arrows. No period of record is given.

MLW

21. Netherlands. Koninklijk Nederlandsch Aardrijkskundig Genootschap. Atlas van Tropische Nederland (Atlas of the tropical Netherlands). Amsterdam, 1938. DLC Map Division G2400 .N4.

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Source No. 21 Continued

...This is an atlas of the Dutch territories including Indonesia. Included are: maps of the Archipelago (scale 1:50 000 000<sub>g</sub>) with July and November isobars, wind direction (by arrows) and January and July isotherms (°C); maps of Sumatra (scale 1:12 000 000) and of Java and Madoera (scale 1:3 000 000) with July and November rainfall amounts by hatched areas (mm); maps (scale 1:3 000 000) of monthly rainfall amounts (mm) by hatched areas of Borneo (for July and January) and Celebes (January and August). Period of record varies from 1928 to 1937.

MLW

1940-1949

22. Mohr, Edward C. J. The soils of equatorial regions with special reference to the Netherlands East Indies. Trans. from the Nederlandsch by Robert L. Pendleton. Ann Arbor, Mich. 1948 766p. 257 figs, 138 tables, numerous foot-refs. This is a translation of his De bodem der tropen in het algemeen, en die van Nederlandsch-Indie in het bijzonder (The soils of the climate in general, and the Netherlands Indies in particular), issued in 2 vol. (6 parts, from 1933-1938, as Koninklijk Instituut voor de Tropen, Amsterdam, Mededeeling, No. 31. 816 p. 236 plates. DWB 631.43 M699s.

...Contains an annual precipitation map (1: 1 500 000, scale) of Java and Madoera (shaded showing areas of fierce; strong, marked and weak dry seasons and areas with exclusively more or less and distinct wet months). All available data up to 1928 were used to construct this map.

JAW

23. U. S. Weather Bureau Climate & weather of Southeast Asia. Vol. 5, No. 3, Pt. II. Farther India and the Netherlands East Indies. U.S.A.A.F. Weather Research Center Publication. Directorate of Weather; U.S. Office of Naval Operations, NAVAER. 50-IR-37. Originally based on U.S. Weather Bureau P.R. 5 (U.S.A.A.F. Report #43). 141 p., refs., 39 tables (1 append.). 23 figs. 1942. DWB M82 U58p. v.5, n.3 Pt.II.

...Contains the following maps: station location (scale 1:43 000 000<sub>g</sub>); those containing bar graphs (data for 12 stations in area of interest), scale 1:43 000 000, for 15°N-20°S and 95°-150°E., showing mean monthly number of days with thunderstorms, cloudiness

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## Source No. 23 Continued

for January and July and mean monthly number of rainy days; scale 1:10 000 000; month with greatest and least rainfall for 7°N-11°S and 95°-141°E; scale 1:90 000 000; mean monthly position of inter-tropical front for 17°K-25°S and 95°-160°E; scale 1:25 000 000, tracks of tropical disturbances for 8°N-18°S and 92°-141°E; and scale 1:94 000 000, prevailing winds at surface and streamline flow at 10,000 feet for January and July. No period of record is given. JAW

24. U. S. Weather Bureau Tropospheric weather factors likely to affect superrefraction of UHF-SHF radio propagation as applied to the tropical western Pacific. U.S. Weather Bureau, Report RP-1, Washington, July 1944. 100 p. 53 figs. DWR M82.1/91 U587tr RP-1.

...Contains the following maps of 1:48 000 000, scale for area 20°N.-20°S. Latitude and 100°E-180°E Longitude: major wind systems for January and July; seasonal percentage of observations in which rain occurred (showing areas of <20 percent and >20 percent); normal monthly position of the Intertropic Convergence Zone; and sea surface isotherms for February, May, August and November.

JAW

1950-1959

25. Braak, C. Klimaat. (Climate). In: Klein, Willem, C. (ed.), Nieuw Guinea de ontwikkeling op economisch sociaal en cultuur gebied, in Nederlands en Australisch Nieuw Guinea. New Guinea. The development of economical, social and cultural area; in Netherlands and Australian New Guinea Deel II (Vol. II): 42-66, 's-Gravenhage, 1953. charts, tables, 9 refs. English summary p. 56. DLC DU 740 .KS4. v.2.

...Contains the following maps: January, March, May, July, September, November, and annual rainfall (scale not indicated, but, about 1:24 000 000); and air pressure and wind, temperature, and cloudiness (scale not indicated, but, about 1:43 000 000). Rainfall maps constructed from data from 82 stations having a period of record of 1-40 years. No period of record given for other maps.

JAW

26. Netherlands (Kingdom 1815-) Hydrografisch Bureau. Meteorologie Nederlands Nieuw Guinea--Voorlopige Atlas (Meteorologie Nederlandse Nieuw Guinea - Provisional Atlas). 'sGravenhage, 1959. Diags, maps. DWB M82.3/951 N469me.

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## Source No. 26 Continued

...This atlas consists of 7 sets of maps, one set (scale 1:10 000 000) of entire Netherlands New Guinea and nearby islands and six sets (scale 1:2 000 000) of various parts of the island. They present seasonal (W. Monsoon-January-March; spring transition-April-May; E. Monsoon-June-September; autumn transition-October-December) frequency distributions over a 3 year period of: wind speed and direction (wind roses), state of weather (symbols), horizontal visibility, height of lowest cloud base, total amount of cloudiness and direction of sea swell. Also included are mean seasonal air and sea water temperature (°C). Observations were made at sunrise (04-08LT), day (08-16LT), sunset (16-20 LT), and night (20-04LT). Diagrams of each element are included. No period of record is given.

MLW

27. Otani, T. Converging line of the northeast and converging belt of the tropical air current. The Geophysical Magazine, 25:1-122, Tokyo, 1953. maps, graphs, tables. DWB P.

...This paper treats some of the problems on equatorial highs or westerlies, typhoon formation, rainfall and cumulusnimbus-cloud formation as well as the rainfall in the East Indian Archipelago and Japan. The concept of converging line and converging belt is introduced. Maps (scale not given about 1:50 000 000) present mean annual streamline at 1.5 and 3.5km levels and mean monthly (January and July) isobars and convergence belt in January in the Celebes and Amboon areas; maps (scale 1:45 000 000,) show annual and seasonal variations of upper currents at selected stations at 1, 2, 3 and 4km levels (numbers on ellipse denote months), semi-annual variations above the 1, 2, 3 and 4km levels, equalphase zone in semi-annual variations of upper currents (3km level); maps (scale 1:65 000 000 ) with distribution of rainfall showing maximum around January and July and semi-annual variation with maximum from April to May and October to November. Also included are maps showing various fronts associated with typhoons on specific dates at various levels. No period of record is given.

MLW

28. Schmidt, F. H. and van der Vecht, J. East monsoon fluctuations in Java and Madura during the period 1880-1940. Indonesia. Djawatan Meteorologi dan Geofisik. Verhandelingen No. 43. Djakarta 1952. English. DWB M82.1/91 I4lv, No. 43.

## Source No. 28 Continued

...Includes map scale 1:2 000 000s of Java and Madura showing location of rainfall stations for which long periods of record are available.

## DMC

29. Schmidt, F. H. and Schregardus, M.W.F. Iets over de weerdienst in Indonesie. (Something about the weather service in Indonesia.) Hemel en Dampkring, 49(2, 3): 23-31; 54-59, 1951. 13 figs. DWB M(05) N469h v.49.

...Contains four analyzed maps (scale not indicated, but, about 1:37 500 000) for area of longitude 90°E.-150°E. and latitude 20°N.-20°S. illustrating typical weather situations.

## JAW

30. Schmidt, F. H. On the distribution of sunshine in Java, Indonesia, Djawatan Meteorologi dan Geofisik, Verhandelingen, No. 40, 1950. 18 p. 6 figs., 9 charts, 4 tables, 4 refs. DWB M82.1/91 I 41v. No.40.

...Contains the following maps for Java and Madara (based on 240 stations): seasonal (December to February; March to May; June to August, and September to November distribution of sunshine in the Gedeb-Pangerango regions of scale 1:300 000; difference in duration of sunshine between East Monsoon and West Monsoon (hatched, showing areas of <0, 0-25 and >25%) of scale 1:2 000 000; difference in sunshine percentage between morning (08-09h) and after (15-16h) during East Monsoon and during West Monsoon (both hatched), scale 1:2 000 000; areas of minus 10 to minus 20, 0 to minus 10, 0-10, 10-20, 20-30, 30-40, 40-50, 50-60 and 60-70 percent) scale 1:2 000 000; annual mean of duration of sunshine (hatched, showing areas of 30-40, 40-50, 50-60, 60-70, 70-80 percent); scale 1:2 000 000 seasonal (December-February; March-May; June-August; and September-November) duration o. sunshine (hatched, showing areas of 20-30, 30-40, 40-50, 50-60, 60-70, 70-80, 80-90 and 90-100 percent, scale 1:2 000 000. Data for maps seems to cover the period 1889/1935.

## JAW

31. Schmidt, F. H. and Ferguson, J. H. A. (Editors). Rainfall types based on wet and dry period ratios for Indonesia with Western New Guinea. Indcnesia, Djawatan Meteorologi dan Geofisik. Verhandelingen No. 42.

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## Source No. 31 Continued

1951. DWB M82.1/91 I4lv No. 42. English.

...Contains a polychrome maps scale 1:5 000 000 of Indonesia and scale 1:5 000 000 of Java, Madura, Bali and Lombok with climatic zones (based on occurrence of dry and wet months). Data 1921-40 were used. Also included is a map, scale 1:2 000 000, of Java, Madura, Bali and Lombok with climatic zones according to the Kozpen system.

DMC

32. Schmidt, F. H. Upper winds over Indonesia and Western New Guinea. Indonesia. Djawatan Meteorologi dan Geofisik, Verhandelingen, No. 45, 1952. entirely charts (fold) unpaged. DWB M82.1/91 I4lv. No. 45.

...Contains the following seasonal (December-February; March-May; June-August; September-November) maps for 1000, 3000, 7000, 10,000, 45,000 and 20,000 feet: mean streamlines and divergence and convergence areas and distribution of constancy for area 10°N-11°S and 95°E to 141°E, scale 1:47 000 000; and upper wind roses for area 4°N to 10°S and 95°E-141°E, scale 1:17 500 000. Data based on the 00Z observations from 30 stations for the period 1936-41 and 1947-50.

JAW

33. U.S. Quartermaster Research and Engineering Center, Natick, Mass. Analogs of Canal Zone climate in Indonesia, the Philippines, and Borneo. Technical Rept., EP-116. Canal Zone Analogs VII. June 1959. 22+p. 15 figs., 7 tables, refs. DWB M86 U585t EP-116.

...The climate of Indonesia, the Philippines, and Borneo is compared with that of two localities in the Canal Zone: Balboa Heights, representing the drier, leeward, Pacific side of the Isthmus of Panama, and Cristobal, representing the wetter, windward, Atlantic side.

Maps (scale 1:15 300 000,) show the distribution of areas of analogy of the follow-pertinent climatic elements and combinations of these elements: station locations; temperature, warmest and coldest months, mean daily maximum-warmest month, mean daily minimum of coldest month, mean daily range of warmest month; precipitation, mean annual amount, mean monthly of wettest month, number of wet months; relative humidity, driest month; cloud, mean during wettest month; wind, mean during wettest month; composite of analogous areas-Balboa Heights and composite of analogous areas- Cristobal. Area covered is approximately 12°N-12°S and 95°-134°E. Maps based on 23 stations have from 7-73 years of record.

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34. Wyrtki, Klaus. The rainfall over the Indonesian waters, Indonesia. Djawatan Meteorologi dan Geofisik Verhandelingen, No. 49, 1956. 24p. 11 figs., map (fold), 13 refs. DWB M82.1/91 I41v. No. 49:

...Contains a map, scale 1:12 000 000, showing mean annual rainfall (isohyets) over the Indonesian Archipelago (6°N to 11°S and 95°-141°E). Map based on data from 1169 stations for the period 1879-1941.

JAW

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